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ABSTRACT

This discussion of the education and training of information professionals in North America includes comments on issues in the preparation of librarians, information scientists, information resource managers, archivists, and records managers. It concentrates on trends in the information sector rather than specific programs, indicates broad societal currents and relationships that are assumed to influence educational trends in North America, highlights controversial issues, and points to the need for intensive international cooperation among educators in the information field. Specific topics examined include issues of professional identity, the role of research in professional education, ethical and ideological values, program development, changes in the information sector, the diversity of educational programs for various information activities, manpower issues and the placement of graduates, and professional socialization. A 49-item reference list is included. (LMM)

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TRENDS IN THE EDUCATION AND TRAINING OF INFORMATION PROFESSIONALS IN NORTH AMERICA

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The Information Debate

At the 31st Congress of the International Federation of Documentation held in 1965, Jesse H. Shera spoke of the "chaos and controversy" that characterized the state of education and training in documentation, information science and special librarianship in the United States of America (Shera, 1966, p. 27). At the same session, Samuel Rothstein (1966, p. 49) admitted that "a large initial difficulty necessarily attends any description of the education and training of documentalists in Canada. I refer to the problem of definition". Nearly twenty years of discussion about the theories, values and methods that the education of information professionals should convey, have not reduced the controversy. Maybe this is for the best. There has certainly been no stagnation and complacency in this field.

Today the international debate concerning the knowledge bases and characteristics of information work seems to be less chaotic and more constructive (Belkin and Robertson, 1976; Debons, 1974; Walker, 1981). There is considerable exchange of views across the boundaries of emerging fields of knowledge and practice. Concepts and definitions have not crystallized in any widely generalizable mode, but information professionals have learned to work with a number of losely related assumptions and propositions that are coexisting.

Aristotle has said in his "Politics" that each instrument has the finest finish when it serves a single purpose and not a variety of purposes. Two decades ago, the controversy on education and training

for information work was largely motivated by conflicting aspirations that seemed to defy cooperation and mutual enrichment. The efforts invested in the debate served a number of special interests that were at cross purposes. I believe that today we are at a stage where the integration of various approaches to information transfer, together with the concentration of energies on making organized knowledge useful to society, appears to be a more realistic goal. This recognition is probably behind the efforts which are under way in several countries to reconcile and coordinate a number of divergent information policies. There are, to be sure, trends in the powerful commercial information sector which are seen as threats, but many information professionals perceive these trends as a call for integration rather than a call to arms. In Aristotle's terms, the instrument of political and academic debate about the information professions is probably more efficacious today than it had been in the past because of its unifying view of information as a national resource.

A Modest Approach to a Vast Topic

This paper will deal with its challenging topic - my assignment from our Chairman - in a very modest way. Although it will discuss the education and training of information professionals in North America, it does not claim to be a state-of-the-art paper. I will comment on some issues in the preparation of librarians, information scientists, information resource managers, archivists and records managers. I will concentrate on trends rather than on specific programs. Finally, I will avoid the pitfalls of projections and predictions.

Sharing with you my personal observations, this contribution has three main objectives: (1) to indicate broad societal currents and relationships that are assumed to influence educational trends in North America, (2) to highlight a few controversial issues, and (3) to point to the need for intensive international cooperation among educators in the information field.

Professional Education and Training

Professional education means the transfer of knowledge, the development of cognitive abilities and the infusion of professional attitudes. Training may be defined as practice-based instruction in the development and use of professional skills. To be effective, education cannot afford to be a routinized assembling of facts and data any more than training can be satisfied with a mechanical accumulation of techniques. Each activity deals with both tangible/factual and intangible/attitudinal aspects of professional work. Each is affected by the confluence of social, economic and technological realities of the environment where the learning takes place. Let me give a few examples of these influences and their impact.

- In both Canada and the United States, demographic trends resulting in declining enrollments in institutions of higher education coupled with rising costs are creating major adjustment problems for educational programs.

- Cultural pluralism in Canada represents one of the marked influences on education. To foster a "mosaic" society in which cultural groups are integrated is now the country's official policy (Berry et al, 1976). In the United States of America, legislation enacted in the wake of the civil rights movement affected almost all aspects of educational planning.

- With shifts in the job market many graduates in the humanities and the social sciences are looking for alternative employment opportunities. Universities and colleges are responding to the trend by the creation of innovative career-change programs.

- There is renewed interest on the part of students in practical educational experiences as well as subject matter that promises direct relevance to career goals. The teaching process tends to include not only the introduction of new knowledge but also guidance to students in professional fields in the application of knowledge.

- The paucity of comprehensive and reliable data documenting the rapid changes in the economic and social aspects of education renders the long-range planning of programs extremely difficult.

We can only concur with the conclusion of a recent UNESCO-sponsored study by Statistics Canada of the world school-age population until the year 2000: "Instead .... of reliance on the single set of projections, and the single purpose educational investments based on them, there is a growing awareness of the unpredictability of the future .... The only real safeguard against this is to seek to build versatility, flexibility and a capacity to respond to change into our education systems (Williams, 1981, p. 157).

Issues of Professional Identity

Although the concept of professionalization is subject to controversy, certain basic attributes of a profession are now widely accepted. A service profession is said to be characterized by the interrelationships of three forces:

- A systematic body of knowledge and ongoing research designed to expand this knowledge base.

- Professional practice and the social and ethical implications of client-practitioner relationships.

- Educational programs and manpower development guided and controlled by the profession itself through the establishment of standards and through accreditation and certification processes in the light of a well defined value system.

In the information professions, we may envision the following configuration:

- Information science forms the research and developmental foundation of information practices and services. It encompasses the body of emerging and still controversial, still to-be-systematized theories which are being produced by research on the properties, phenomena and behavior of information.

- Information practice includes librarianship, records and archives management, information resource management, information services and related professional activities.

- Education and training for the information professions correspond only partially to the above described attributes of a service profession because many information science or management educational programs are not currently accredited by any professional association. Nevertheless, the entire range of graduate programs in all their variations (Master's, postgraduate, doctoral and continuing education) pertains to this category. Most possibly in the near future we will see the development of new professional accrediting mechanisms for various programs addressed to particular fields of practice.

The Role of Research in Professional Education

Reference to the first attribute of a profession, "a systematic body of theoretical knowledge", tends to create remonstrations in our field. We are concerned with the absence of theory in library studies and the lack of conceptual clarification and systematization in information science (Houser and Schrader, 1978, Shera and Cleveland, 1977).

In response, graduate programs are fostering a stronger research orientation. Generally, developments fall into three categories: (1) increased faculty involvement in both theoretical and applied investigations, (2) classroom teaching of research methodologies, and (3) more practicum for students by working on faculty research projects. Currently these activities concentrate almost exclusively on social science research approaches. Cameron (1982, p. 235) speculates that in Canada the interest in archives science and records management, and the growth of Canadian studies "may eventually lead to a return to, or reinforcement of the 'historical-bibliographical' base of librarianship and information science alongside the social scientific base".

Information scientists have always been keenly aware of the need for high quality theory-building investigations. In earlier years, this quest was mainly motivated by the drive to have information science accepted by the scholarly community as an academic discipline, and by the practical need to improve the planning, design and use of information systems through a better understanding of the phenomena of information flow. Analytic methodologies of other disciplines, particularly sociology, psychology, economics, policy science, communication science, and computer science, continue to have an impact on research design.

The first concern of researchers is the ongoing upgrading of the quality of conceptualization, problem formulation and interpretation of findings. The second concern that is rapidly gaining ground focuses on the applicability of research to not only scientific and technical but also social problems (Slamecka, 1975). Complexity of presentation and terminology might diminish the direct relevance of information science research to practitioners (Waldhart, 1975). The quest for the utilization of knowledge has grown into a specialty in its own right, with journals and conferences devoted solely to the theories and processes of repackaging, diffusion, adaptation and application. Social scientists have raised interesting questions about the use of research by policy makers and managers, questions that should be studied - and in some instances are studied - also by information scientists. But the teaching of this important area of information transfer has found its way to the classroom only in a few institutions.

Education programs will undoubtedly be interested in the outcome of a study and research planning meeting conducted by Cuadra Associates, Inc., under auspices of the U.S. Department of Education. "A Research

agenda for the eighties" (1981) identified twenty research areas as priorities including electronic publication; online network to support question answering in libraries; information needs; consumer behavior and marketing; user behavior; impact of the "new information literacy" on the "knowledge gap" between demographic groups; costs and funding; the economic value of information; diffusion of innovations and intellectual freedom. The underlying message of the research plan was a need for excellence and austerity of research budgets.

Ethical and Ideological Values

Ethical considerations are pivotal to research, practice and education in a profession. Information transfer in any environment and situation has a potential effect on the lives and work of people. We assume that via the information users' intellectual and economic productivity, information exerts a powerful impact also on societies. This chain of influences mandates a thoughtfully developed and maintained ethical value system. In the past, librarianship has devoted more concern to this issue than information science and management. Both the American and Canadian library associations and several specialized library associations (especially in law and medical librarianship) have adopted policy statements on problems of censorship, confidentiality of library records, the freedom to read and related matters.

Kostrewski and Oppenheim (1980, p. 282) suggested the need for a code of ethics to be developed by the Institute of Information Scientists in England, although they simultaneously stated that "information science is not a profession and may never be". In the United States of America,

Pearman (1981), executive director of the National Commission on Libraries and Information Science, disagreed with some of the propositions presented by the two British information scientists, but supported the argument for a code of ethics and envisioned a policy formulated by the American Society for Information Science. Gerdels (1977) spoke to controversial issues emerging in governmental, industrial and business libraries and information brokerage in Canada.

In the 1970s the movements toward the social responsibility of professionals, consumer advocacy and interdisciplinary teamwork have prompted many professions to reexamine the values upon which their practices have been based (Burnford and Chenault, 1978). These directions are reflected in the curricula of professional schools; architecture, social work, journalism, public administration and urban and regional planning are examples.

Library education readily embraced the social consciousness of the previous decade. Students encountered an upsurge in courses and whole programs in community analysis, services to the underserved and special groups, urban information systems, information and referral, and neighborhood information centers. "Virtually every area of library education may be affected" predicted a conference on library and information service needs of the nation (U.S. National Commission on Libraries and Information Science, 1974, p. 279). This trend attracted researchers and policy analysts to the study of public information whose work influenced several innovations in library schools (Kochen and Donohue, 1976; Sackman and Boehm, 1972).

In the United States of America, funded research projects in community information peaked in the late 1970s. Because of cuts in governmental and higher educational budgets, the funding patterns changed, and overall research support has declined. However, the impact on practice should not be overestimated. Community information programs, especially in the areas of health and adult education, are still expanding in response to the needs of the 1980s. The availability of microcomputers plays a considerable role in these developments.

In the face of growing financial problems, public libraries in both Canada and the United States of America continue to represent a strong service ethos. As "Project Progress", a recent study of Canadian public libraries indicated, public librarians are seeking to implement their service philosophy by improved management, marketing and evaluation techniques (Yeo and MacQuarrie, 1982).

In spite of remarkable pioneering efforts to apply computer technology to everyday human information needs, information science education programs rarely offer courses in the social and ethical ramifications of growing information sophistication. This is curious, because curriculum plans almost always urge the critical examination of values upon which information-related decisions may be made. For example, Swanson (1978, p. 149) cited as attributes of professionals the "intellectual and behavioral competencies instilled by professional education" including "an ability to identify ethical principles, recognize ethical problems, and reach appropriate solutions in terms of ethical principles".

In a closely related field, the recommendations of the leading professional association for Master's level programs in computer science

stated that "Master's students should take an active part in the activities of any local professional computer science organization which may exist. They should be aware of the societal impact of computing as incorporated in the ACM Code of Ethics" (Association for Computing Machinery, 1981, p. 117). Other fields too, found a way to initiate discourse on ethical values. Churchman (1970, p. B-50), discussing operations research as a profession, asked "...to what extent any one of us ought morally to be concerned about lives beyond our own life spans... There must be something deeper than a mere enabling philosophy. This 'something beyond personal power' has often been called morality". And Porat (1977, p. 210) in his report on The Information Economy: Definition and Measurement, suggested that "some of the most insightful debates about the future course of our society occurs at the ideological level".

Such debates can expand the perspective, sharpen the critical ability and increase the mutual ideological tolerance of students. In information science and information resource management programs, a course or seminar on information policies may offer the academic framework for the objective investigation of ideological questions. Educators are beginning to recognize the benefits of introducing the process of policy analysis and review to students. Issues of information equity, responsibilities for the "information poor", the confidentiality of individual and proprietary records, access versus privacy protection, ethics of research and the protection of research subjects, and many other relevant problems can be constructively discussed.

Trends in the Information Sector

In these years of breathless change, programs preparing information professionals cannot stay aloof of developments in the information sector. The scope of this sector has been interpreted in various ways by those organizations and individuals who study information-related activities. UNESCO's General Information Program (PGI) encompasses "the development of libraries, archives and specialized information programme components" (UNESCO General Conference, 1976, 19C/Resolution 5.1). The Organisation for Economic Co-Operation and Development (1981) has set up an expert group to agree on a common framework to carry out a statistical investigation in OECD countries of all "information activities, electronics and telecommunication technologies". In the United States of America, Porat (1977, p. 15), defined the primary information sector as "all industries which produce information machines or sell information services on (established) markets .... Included here are such diverse industries as computer manufacturing, telecommunications, printing, mass media, advertising, accounting, and education". The secondary information sector includes "most of the public bureaucracy and all of the private bureaucracy" that produce information services for internal consumption (p. 4, p. 15).

In the following brief outline, some of the issues that have emerged in recent years intend to illustrate rather than describe trends in the information sector. Although these issues first surfaced in the United States of America, we can observe a similar, albeit more gradual development in Canada (Neill, 1980).

- In a service economy, information is considered a national resource of significant economic and social value. It is attracting the attention of policy makers at all levels. Economic analysis and information resource management are characteristic of current approaches to information as both a commodity and the activity of a growing portion of the work force.

- The use of computers and telecommunications is transforming the structures and relationships of social institutions. The technological change is much more rapid than changes in policies. The main requirement from society seems to be finding the balance between research and development on the one hand and understanding of the implications of information technology for the future on the other.

- There is a need for integrated information policies at the national, state/provincial and local levels to assure coordination of information resources and equitable access to them. Although this need has not yet been translated into reality and the teaching of information policies has to deal with a subject in turmoil, curriculum development incorporating one or more courses on policy-related topics is already evident in a few educational programs.

- Information policies have been expressed by a large number of legal instruments -- statutes, regulations, judicial decisions, etc. -- on scientific research, technology innovation, education, information dissemination, intellectual property, ownership of data, privacy protection, international communications and many other complex issues. The legal dimensions of information policies constitute a whole new area of study.

- Being well informed about ways of dealing with everyday problems of life and work is one of the basic human needs. Librarians and other intermediaries recognize the education of potential information users as one of their most important

roles. To increase people's ability to express their needs and to help them apply relevant knowledge where needed, is a function that goes well beyond traditional information services.

- Networking of libraries and networking of information systems is one of the activities that has been made possible by technological advances. Following the original concern with administrative and systemic problems, the economic and psychological aspects of all kinds of networks are now being studied. Human resource networks - some using computer communications and others simply using newsletters - represent the latest trend.

- Interdisciplinary cooperation in research and professional work is producing publications, reports and conference papers which are dispersed in the literatures of many disciplines. Information searchers need to be prepared to respond to interdisciplinary queries concerning such areas as energy, environmental relations, populations studies, rural development or urban and regional planning.

- We have to admit that even the most advanced information systems and the best stocked libraries remain underutilized unless effective communication is developed with potential users. New insights and techniques to enhance human interactions within the system and the marketing of information services are seen today as necessary elements in the professional curriculum.

Program Development

How have graduate programs responded to these forceful changes in the information sector? Studies, reports and opinion papers abound alternately documenting developments and exhorting educators. Publications of government agencies, professional associations and industry

are raising questions about manpower supply and demand, proposing standards and often contradicting each other on the intellectual and technical requirements for future information work. Programs from advanced theoretical studies to training in basic skills have been reviewed, revised and reviewed again. With the advances in research and development in information and communications technologies, the cloud of obsolescence hangs over each successive revision.

The U.S. National Commission on Libraries and Information Science (1975) provided a national plan including goals for the education of library and information personnel. A few years later, a paper presented under the sponsorship of the U.S. National Telecommunications and Information Administration suggested that programs in information management are needed at the university and postgraduate levels for "computer and communications scientists, engineers, librarians, historians, journalists, TV broadcasters, and information managers..." (Yurow, J.H. and others, 1981, p. 97). Several developments indicate a similar broadening of the policy framework in Canada. Based on an extensive study, the National Library of Canada (1980) introduced a five-year plan for a national bibliographic network and resource sharing. The report referred to the "great variety of specialized sources and services outside of the realm of libraries and archives" (p. 45). In the same year, the final report of the Canadian Computerized Bibliographic Center Study described an impressive array of current and recommended network activities (Duchesne et al, 1980). Both of these reports focused on bibliographic networks. Today, the Science Council of Canada (1982) speaks of a transition period to "the information society" and its

implications for education. The emphasis shifted from bibliographic to all types of communications networks.

Professional associations play a major role in the shaping of educational programs through (1) establishing standards for professional practice and education, (2) examining and accrediting programs, or testing and certifying individuals, (3) proposing curricula where development is needed, (4) proposing criteria for accreditation where the process does not exist, and (5) providing a forum for the discussion of these and related issues. The associations are also instrumental in compiling statistical information about educational programs in their respective fields of commitment.

We have witnessed widespread controversy about methods of curriculum revision and change. Should information science courses be added to the traditional library science curriculum or should the new approaches be integrated within the subject matter of each individual course? The catalogs of Master's programs present a confusing picture because too many courses have nebulous titles playing on endless variations of the information theme. A clearer overview of new shapes in the academic scene is possible where two distinctly separate Master's programs operate side by side, for example the Department of Library Science and the Interdisciplinary Department of Information Science at the University of Pittsburgh, or the Master's in Library Science and the Master's in Information Resource Management at Syracuse University. Also the two-year programs of most Canadian schools allow for a useful delineation of basic and specialized areas of study.

Programs leading to the first professional degree in librarianship (the Master's in Library Science programs) in the United States of America and Canada are accredited by the American Library Association's Committee on Accreditation (COA) based on standards adopted by the ALA. According to a recent policy development, ALA will accredit upon request, library schools outside the United States of America and Canada. Separate information science or information resource management programs which have been established in library schools do not fall under this accreditation process. In the literature, no one source could possibly have provided a comprehensive overview of these curricular changes. However, several publications together succeed in charting a fascinating development (Association of American Library Schools, 1981; Cameron, 1982; Harmon, 1976; Reed, 1978; Svenonious and Witthus, 1981).

Since the 1960s, the pattern of academic information science programs evolved in a heterogeneous but fairly predictable way. Graduate programs have been established (1) as separate academic units (Harvard, Lehigh), (2) with computer science departments (Cornell, Georgia Institute of Technology, Ohio State University), (3) in schools of management and business (American University, Massachusetts Institute of Technology, New York University), (4) with communications science (Stanford University, University of Southern California) and (5) in engineering departments (Purdue). The American Society for Information Science (1981a and 1981b) describes examples of jobs, general educational requirements and graduate programs in the United States of America.

A more specialized approach is represented by educational programs in information systems which are defined as computer-based systems for

"providing information to members of an enterprise" (Nunamaker, 1981, p. 125). Programs in "information systems" have been introduced by computer science departments, schools of business administration, engineering colleges and separate academic units as a separate "track" or option of study. A survey by the Association of Computing Machinery (ACM) between June 1977 and June 1979, identified 91 academic institutions offering study in information systems including 70 Bachelor's and 54 Master's programs. These programs provide training for such jobs as information systems manager, systems analyst and designer, database administrator, communications analyst and systems librarian (Nunamaker, 1981, p. 126).

Currently there is no mechanism to accredit educational programs in information science, computer science and information systems. Based on a two-year study, the Association for Computing Machinery (1981) recommended minimum requirements for Master's programs in computer science and designed a model curriculum. These provisions are relevant to those information science or systems programs which are being offered in computer science departments.

As all information handling fields, professional work with archives and records is characterized by a diversification of specialties, the effect of computer applications and a search for professional standards (Information and Records Management, 1978). The education of the archivist has evolved from graduate programs in both history and library science. Courses of archival administration are being taught mainly by practicing archivists. While those taught in history departments tend to emphasize social and political history, those offered as part of

library education include the past records of a wide range of subjects (e.g. business, art, and the sciences). The Society of American Archivists (1978, pp. 5-6) has proposed guidelines for a graduate minor of concentration in archival education as well as a model curriculum to implement them.

At present, a new dimension of archival studies is developing: the organization of contemporary records. The outlines of records management have barely been delineated, but specialization has already set in as illustrated by the recent creation of the Association of Commercial Records Centers. Berner (1981, p. 17) suggests that "interdisciplinary and interprofessional collaboration of the highest order is required for building an adequate curriculum". The Association of Records Managers and Administrators (ARMA) has assumed the responsibility for surveying current educational programs and recommending innovations (Association of Records Managers and Administrators, 1981). In Canada, the search for a field of knowledge applicable to modern records management has led to a new discipline identified as records science.

The Difference Between Mediocrity and Excellence

I have given a fleeting indication of the extreme diversity of educational programs for various information activities. I would like to conclude by what I will call random observations of one educator in North America.

- Manpower issues and the placement of graduates are assuming a new complexity because graduates of traditional programs have to compete in an unprecedented, kaleidoscopic and capricious market. As Canada's massive report on "Job market reality for postsecondary graduates" stated, "the linkages between education and employment are certainly critical, both in a social and an economic sense. Nevertheless, surprisingly little is known about the details which actually characterize this transition from school to work" (Statistics Canada, 1981, p. 5). Some recent efforts to survey the information market attempted to fill this gap, although they have not established specific connections between education and employment (Debons and King, 1980; King et al, 1980).

- Diversification in the background and objectives of students and a simultaneous thrust toward innovative programs make it practically impossible for educators to agree on a "core" of basic knowledge for information professionals. Even the controversy about the necessity of a "core" is further than ever from being resolved. Maybe the only possible policy is to maintain some sort of a core for those students who thrive in a more structured framework, but build in enough flexibility to allow for the creative intuition, self-direction and unfolding talent of future leadership.

- I can envision this solution only in the context of close student-faculty relationship that permeates an entire program rather than just the classroom. Teaching, research and professional activities should blend without arbitrary lines of division. As teachers, we hope to introduce the art of integration and synthesis in order to make interdisciplinary sense of compartmentalized facts. As researchers, we use the methods of scientific reasoning as a teaching tool for students in the research practicum. As professionals, we facilitate the dissemination and application of knowledge through publication, participation in professional associations and conferences, and consulting. Only educators and students who are deeply involved in a creative interaction through these processes can hope to reduce the distance between academic experience and reality.

- "Professional socialization" which was a relatively clear-cut process when all students in a program knew what field they wanted to enter, is now wrought with intellectual and psychological conflicts. In many programs it is not being considered a necessary or even desirable aspect of education. At the same time, information practitioners live in an intensely politicized atmosphere whether they know it or not. It should be sufficient to mention the politics of funding channels, free versus fee-based services, networking, the legal aspects of management and information handling, staff relations and unionization.

- There is certainly no disagreement about the need for practical experiences aimed at measurable (and marketable) skills and techniques in professional education. Only the optimal balance between knowledge and know-how is at question. Continuing education is expanding because practitioners in all kinds of roles are either motivated or forced into updating themselves by the relentless pace of change. The major areas of interest are management techniques, new technologies and networking.

- The activities of universities and professional associations indicate that the international aspects of educational programs are expanding. Two main factors may account for this development. First, the combination of telecommunication and computer advances opened up global issues in information transfer and policy which render a parochial view of education completely obsolete. Second, an increasing number of students come to study at American and Canadian universities. The National Committee on Foreign Student Policy of the American Council on Education predicted that foreign students would make up 10 percent of enrollees in the United States by early 1990s instead of the current 2.7 percent (Danto, 1982). These two trends have a tremendous potential to enhance each other as they continue to unfold.

- Educational planners and administrators find that in times of economic hardships it is difficult to maintain the many kinds of programs - pregraduate, graduate, postgraduate, doctoral and continuing education - which have sprung into existence. Equally counterproductive is the administration of the open-ended and ever-growing curricula which attempt to accommodate a growing number of interests of students and employers. There are no magic remedies, but many educators are beginning to urge cooperation between various programs. Coordinated planning might prove to be more profitable in the long run than relentless competition.

- My last point concerns the national leadership role of graduate educational programs. The relationship between current research and the classroom is not an unexplored area, but its impact on professional preparation is difficult to measure. Yet I argue that it is the involvement of students in the entire system of knowledge production and application that makes a difference between mediocrity and excellence in an educational program. While developments in the information sector are affecting the curriculum, research conducted in graduate schools ought to affect developments in the information sector. I don't know of a better way to prepare people for professional leadership than to involve them at the graduate level in the production of new knowledge.

The catalytic role of information in the lives of individuals and societies is a world-wide phenomenon. We are just beginning to sense the potentials and problems of this situation. Although excellent educational programs exist or are developing on every continent to meet this challenge, there is a need for ongoing experimentation and search for innovations. Moreover, educators want to participate in the formulation of comprehensive policies for the education and training of information professionals within each country's national development plan. The international exchange of ideas and experience among

educators is the indispensable basis for the work ahead of us. The difference between mediocrity and excellence in international programs depends not only on how far our vision can carry but also, how closely we can listen to each other.

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